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THE NATURE OF TRUTH.

THE pragmatic movement has emphasized practically altogether the *function* of truth in relation to life as a whole. The function of truth is to regulate conduct; and truth, therefore, is valid when it flows into its anticipated consequences. These consequences are further experiences. Epistemologically truth rests on experience; and experience, as one moment of individual consciousness, rests on more experience, the present moment becoming confluent with the new moments in the ever-expanding restless stream. The flow of this stream has its direction determined by the past and present tendencies, but it also has its own individuality, as the old elements flow into the new situations, whether chemical or psychological.

What should be made clear, however, is that pragmatism is a theory of the function of truth, and does not deal with the whole problem. By emphasizing this we may be able to attract attention to the far larger and more complicated problem of the form of truth. To be sure, even in dealing with the problem of function, pragmatism has been inclined to limit itself to the biological function of truth—truth as a factor in the adjustment to the perceptual environment or a tool for dealing with practical situations. Pragmatism has been inclined to neglect the sporting interest in truth—truth as setting its own problems, choosing its own constitution, and thus elaborating its logical consequences to harmonize with its posited world. But this, while it alters our conception, of the scope of truth, does not fundamentally alter our conception of its function, which still remains to regulate conduct—the conduct of the understanding as well as the adaptation to a perceptual environment.

But granting that thought comes to light in the stress and strain of experience—whether forced upon us by the environment or posited as the logical play-ground of the will—there remains the problem of the nature of thought itself. Is the form of thought originated by the 'practical' situation—the consciousness of difficulty or disorganization out of which it arises? In the case of generating electricity by friction, say by two sticks of wood, we are setting free a preëxistent energy, the nature of which we must respect; and the friction simply furnishes a condition for its manifestation. Is it so with thought? Or is thought created outright by doubt? Does it really grow out of the infra-logical antecedents? In that case, is the form, the laws of thought, too, created? Are they set by the will as its temporal conventions or must they be acknowledged by the will as eternal? In the former case, are they just what the *individual* posits them as being or are they universal? But, if without conventional agreement, we find ourselves acknowledging these laws whenever we think, they would seem to be independent of the will and have a preëxistent character. In Plato's terminology, they would seem to be 'recollected' rather than created in our coming to consciousness of them. The laws of thought would seem to be *discovered* through their use in experience, rather than *made*.

If we look forward to the end of thought, instead of backward to its origin, is thought simply a tool to an alogical end? Or does thought enter into the end of life as an intrinsic factor—not as a scaffolding merely for a higher stage of mystic immediacy or biological activity, but as the law of the process of life? What relation does thought, with its postulates, bear to life as a whole? Such, and many other questions, still remain, after we have agreed upon the regulative function of thought in experience. To ignore the structural aspect of thought means a very invertebrate theory of knowledge.

One thing is certain, that the teleological value of thought cannot be understood apart from its correctness, its technique. The syllogism, with its rules, is a valuable machine for abstracting and investigating valid thought relations, in spite of the contumely heaped upon it. What is true of the syllogism, as a device for ascertaining formal relations, is true likewise of the so-called inductive canons for ascertaining causal relations amongst facts. The practicality of our thinking about perceptual situations lies in its being correct thinking, and Mill's canons are an important device for such procedure. It if is true that the procedure explains the value of the device, it is also true that the procedure is made possible by its being a correct device.

Are these rules arbitrary? The rules of athletics are not arbitrary, though they may seem so to the spectator. They are the result of studying the laws governing both the constitution of the players and the appreciation of the spectators, so as to produce, on the whole, the best result for player and spectator alike. The conditions governing the game may be said to preexist in human nature and to be binding if you choose to play the game and play it effectively. So with the laws of thought. The question, then, arises: What are those laws of thought which in all our reflective procedure we must respect? And what is the basis of their authority? To begin with the first question: What postulates are implied in all thinking and condition its procedure?

I shall try to show that there are four presuppositions or laws which are implied in all our knowing, viz.: the law of consistency; the law of totality; the subject-object form, or the law that knowledge must be representative; and the law of finitude. The use of these terms will become clear, I trust, in the discussion.

I. The Law of Consistency.

First of all it will be generally agreed that we presuppose consistency. Under the law of consistency I include what are usually termed two laws—the law of identity and the law of contradiction. It requires no proof to show that these are merely different emphases of the same meaning. If we use the old formula, *A* is *A*, to symbolize the so-called law of identity, the law of contradiction simply brings out the implication that if *A* must be taken as *A* throughout the logical procedure, it cannot also be taken in the same sense as not-*A*. This is true, but it is an implication rather than an independent law. Fortunately, the concept of consistency comprises both of these implications, viz., that for purposes of thought we must be able to take *A* to be *A*, and that if we must thus take it, we cannot take it as not-*A*.

But the term consistency has a further advantage. It not only comprehends both of the old formulas, but it also brings out what they failed to do, namely, that it is identity within a variety of individuals and changes with which we are concerned. Truth would be meaningless within an abstract world in which *A* is bare *A*. It is the constancy of *A*, as making possible description and prediction, that makes truth mean something. The law of consistency means that in the variety of experienced facts and changes, there must be a certain constancy of content, if we are to make any predicates about our world. Unless we can take our abstract meanings, qualities, relations, or whatever we may be actively interested in, as the same, in spite of flux, we can make no judgments or inferences. This means, formally expressed, that we must take *A* as *A* throughout our logical procedure, and that we cannot take *A* as not-*A*, if we would reason about the meanings or things of our experience. This implies that, for logical purposes at least, there are such recognizable identities as furnish leadings or threads to the plurality and flux of experience.

We can see that nominalism, in the bald sense of absolute disparateness, would make truth impossible. In such a world there could be no concepts and no inference, as each particular content must be taken as unique. Nor is it necessary to go to the opposite extreme, and speak of universals or identities as existing prior to the instances and these as differentiations of this identity, as even Bosanquet does. This makes knowledge quite as impossible as does pure nominalism, for it is absurd to suppose that from identity any instances could be differentiated. It is enough for truth that certain characteristics can be taken as the same in various individuals or groups, and so make it possible to say something about their conduct so far as these characteristics are concerned.

Nor is a purely dynamic nominalism any more possible. To be sure, truth deals with a world of change. But change need not be chance or absolute discontinuity of process. In so far as such is the case, truth of course is impossible. Change may be circular or practically so; and it is a world with a certain uniformity of characteristics, however much it may change, with which truth must deal. It is only in so far as our world of experience can be taken as constant, that we can have science, though of course such a statement would be meaningless if it were not a world of change.

The law of consistency always has to do with meanings. The meanings may be abstract or hypothetical merely, and our interest may be in their formal relations. Or the meanings may refer to qualities and relations in concrete experience, and so may be concerned with existence. But in any case the law of consistency refers to the identity of meaning, and holds that, from an identical content, identical consequences must follow; so that if certain consequences follow from M in the case of P, the same consequences must follow from M in the case of S.

The law of consistency applied to the concrete meanings of experience—qualities, relations, or whatever they may be—means that you cannot take the same fact as A and not-A. A thing cannot be taken as having the quality of A and the quality of not-A, white and not-white, in the same respect. It does not deal with the question whether a thing can have the quality A and not-A in the same respect. The law of identity is forced upon us irrespective of the object, though inasmuch as reality is for us what it must be taken as, in the procedure of experience, we naturally extend the law of our thinking to things as well. In this there can be no harm, if we know what we are doing and are not postulating some occult harmony to cover up our previous dualism of thought and things, created by our own assumptions. One thing is certain, the world of experienced things is to some extent describable and so must have some degree of identity.

That A is not not-A involves no contradiction. They can still hang together within one system. In fact there can be no system, if there is not difference. Being and not-being, as pure abstractions, do not imply each other. They are exclusive. But as pure abstractions they are also indistinguishable. They can only have meaning within a context. And when we really develop their meaning, instead of bandying terms, we find that they hang together by their edges—that we cannot define one without implying the other within a system of meaning which posits them as aspects of itself. Bradley would argue that A cannot possibly be not-A. Nor can they be related in any manner. For suppose they were like in any way. Then in so far they must be identical or partake of a common term. This leads to an infinite regress.

But what is this but playing with terms? Of course, if *A* and not-*A* be made exclusive by definition, they cannot belong together. But that does not prevent our actual *A* and *B*, as experienced, from belonging together within a system, though perhaps not always one of logical implication, as Hegel thought. Experience is not chopped up with a hatchet, not made up of isolated abstractions. As immediate, the qualities of experience are unique. But as immediate they are neither here nor there, neither this nor that, neither more nor less—no truth. It is because these facts are capable of being sorted into series and classes, on the basis of degree or kind, that we have science. And this distinguishing of degrees or kinds, identities or differences in the world of individual facts, does not seem to disrupt. It contradicts neither their existential nor their appreciative unity.

Two aspects are involved in the concept of consistency, as I am using it: First, that terms must have an identical meaning, must be taken as the same throughout the argument. Otherwise we shall not be talking about the same thing, and so be guilty of the fallacy of four terms. This use of the term consistency is closely bound up with the other aspect: Namely, that from identical characteristics follow identical consequences, whether we deal with relations or qualities, or whatever the selected content may be, and whether the individual facts be the same or we be dealing with new groups of facts. This is equally involved in deductive and inductive inferences. What we must be careful about in each case is to isolate or distribute the identity, to see not merely that there is identity in the situations dealt with, but that it is significant or relevant identity—identity in the same respect, *i. e.*, that it pertains to the consequences which we try to deduce. This is reduced to a technique in the syllogism by rules such as that the middle term must be distributed at least once, that no term must be distributed in the conclusion which is not distributed in the premises, that there must not be more than three terms, that both premises cannot be particular or negative. As regards causal relations the technique of discovering this identity has been systematized in Mill's canons, the ideal of which is the method of difference, which means precisely a distributed identity. We thus proceed to sort our facts into classes and series with determinate characteristics and predictability. The success may be varied, and even with cumulative coöperation and specialization must necessarily be slow, considering the complexity of our world. Sometimes the result of scientific investigation is simplification of hypothesis. Again, new and unforeseen data come to light, necessitating fresh assorting. But the progress of science, physical and psychological, is evidence to how great an extent the world of our experience lends itself to conceptual manipulation.

As the law of consistency means that an object of experience must be taken as the same (quality or relation) in the same respect; or, expressing it negatively, that an object cannot have different predicates in the same respect, this will be seen to include what Lotze has called "the disjunctive law of thought," a species of which, in the case of only two alternatives, would be the so-called law of excluded middle. To use a concrete instance: a rose *a priori* may be qualified by any one of a number of colors, but as a matter of fact it can be taken only as having one color in the same respect. And if it possesses one, for example, red, it cannot possess any of the other colors at that point. Whether you artificially dichotomize your universe of color as red and not-red for the purpose, or state the actual disjunction of alternatives possible, the result is the same. An object cannot both be taken as having a quality and as having a different quality in the same respect. The 'disjunctive law' is hardly even a corollary. It is rather the explicit statement of the law of consistency, as previously used.

But if the traditional laws must be regarded as different emphases at most of the same principle, they have their meaning, nevertheless, as psychological stages in making explicit the law of consistency. From this point of view the consciousness that A must be taken as A, in a universe of discourse, is less distinct than the consciousness that A cannot be taken as non-A. But the full significance of the law of consistency is expressed in the 'disjunctive law,' viz., that our universe of discourse must be capable of such disjunction that A can be distinguished from B

and every other possible predicate in the same respect—only one of which can be taken as qualifying the subject and thus be predicated in distinction from the rest.

As corollaries or implications of the law of consistency, we would have the axiom that what can be predicated, whether affirmed or denied, of a kind can also be predicated of that kind's kind, which is so vital in all our deductive procedure. And also that what is true of one group of facts is true of another group, if the practical consequences follow from characteristics which the groups have in common. And thus we can extend our knowledge by analogy to new cases and test its application there.

II. THE LAW OF TOTALITY.

But though we are able thus to establish kinds or systems of fact, with their definite connections and predictability *in suo genere*, the question still remains whether these systems cohere into a whole, hang together as kinds, or whether perhaps our world is made up of disparate or parallel systems, whether two or infinite in number. Now to be knowable it will be seen that somehow the various systems must hang together at least with our cognitive purposes. We must have systematic connection in the large (*in dem Grossen*), as well as unique determination within the one kind or series (*in dem Kleinen*). Taking number as one illustration, not only must the various series, finite and transfinite, be self-consistent, but we also demand that they shall form a complete whole. Now this postulate of systematic connection in the large, I would call the law of totality.

This is broader than Leibnitz's law of sufficient reason: Nothing happens without a reason why it should be so rather than otherwise. It does not mean to emphasize teleological connection as over against causal, as has sometimes been the use of the law of sufficient reason. It merely emphasizes that facts do not exist as isolated individuals or isolated groups in our experience, but belong with other facts; that reality, as we know it, hangs together by its edges, so that we can pass from one fact to another, either directly or by intermediaries; and only so can we know it. It does not mean that every fact makes a difference to every other; that our fancies alter our gravitational relations to the Milky Way. This would be impossible to show. On the contrary, we know that some facts seem to make no direct difference to a given group of other facts; and some make a certain kind of difference only under certain conditions of intensity or complexity. It makes no difference to a color in what part of a space or time series it is located, whether perceived yesterday or to-day, here or in China, given the same concrete setting. But the number of vibrations per second do make a difference. Even here, however, on account of the structural conditions, a certain intensity of vibration is required to perceive light at all, and a certain number of vibrations per second must be added to perceive another kind of light. Experience, as we can take account of it, does not proceed by infinitesimal transitions. The law means that facts possess such uniformities or similarities that we can pass from one to another, under determinate conditions, if not immediately, through a series of intermediaries. If my thought does not directly affect other bodies in space, it may do so indirectly through the difference it makes to my own body. But, by some edges, some common attribute, all the parts of our world hang together. Mind must make a difference, under determinate conditions, to mind, and body to body, and mind to body and body to mind, in so far as they are parts of our experience and known by our experience.

The constitution of the human mind makes the causal category a pervasive one. To know our world means that its various objects can make a difference either directly or indirectly to our minds. This, in the case of the physical world, means a causal difference. To speak of physical changes as parallel to thought would mean that the mind can take account of objects that make no difference to it, which is absurd. That our ideally posited world of objects makes a difference to our purposes requires no elucidation. Thus widely interpreted, the law of totality means that the world with which knowledge is concerned cannot exist in compartments. In a certain sense it may be taken as equivalent to Spinoza's conception of substance, without assuming *a priori* that "the order and connection of ideas is the same as the order and connection of things." We have to do here only with things as experienced. We might however agree to Spinoza's axiom that "things which have nothing in common cannot be understood, the one by means of the other; the conception of one does not involve the conception of the other"—meaning by "in common" merely that the things must be capable of making a difference to each other under certain conditions, and especially, directly or indirectly, to our cognitive purposes. We cannot know universes split off from our own, if such were existentially possible.

In spite, however, of Spinoza's insistence upon the unity of the one substance, he left us two disparate parallel systems which can make no difference to each other, have no common attribute —the world of thought and the world of extension. Our concern here is not with the metaphysical possibility of such a conception. But for epistemological purposes, we must assume not merely that the universe can be sorted into kinds, but that these kinds somehow hang together, that one part of our experience coheres with another part, either directly or by means of intermediaries. Only in such a world would social objects be possible. Facts thus have not merely a unique determination within their own special system, but have a universal reference, cohering as a whole. And this is what I mean by the law of totality.

And how do they cohere? I can conceive of only two ways, either as cause and effect, or as means within a purpose, logical, ethical, or esthetic. And it is not necessary for epistemological purposes, whether it is for metaphysical or not, to reduce these to one. It is not enough that facts are together in one space and one time. They might be thus together and yet exist in compartments. Space and time do not unify. On the contrary the same presupposition of totality applies to our space and time systems. We assume the unity of space on the basis of the law of totality, *i. e.*, because we believe that our universe of facts, spread out in space, hangs together. And so with the unity of our social time construction. Empirically we do come upon functionally dissociated time series in experience, as in automatic writing and trance, but they are cognitive realities only when connection is established. Facts must run into each other some way, causally or teleologically, to make the unity required for cognitive purposes. And as all teleological unities are also psychological events, therefore all facts must in the last analysis be causally conceived, according to some definite relationship, as objects of knowledge.

Nor does the law of totality mean merely that the facts of experience are a collection of such a kind that we can use connective symbols as *and* or *with* or *on*, etc.; not merely that we are conscious of the facts together, which we are only to a small extent, but that facts make a difference to some other facts, become confluent with some other parts of experience, in a systematic way. If knowable, they are not merely lumped as *ands* and *withs*, but strung with identities which we can disentangle either causally or teleologically. This we postulate at the very outset of logical investigation. Only in this way are consequences predictable, formally or materially. Whether the laws of thought hold for things or not, they hold for our experience of things, actual and possible. And that is all that is logically important. The form of experience at any rate is predetermined.

Because we must assume that facts, in order to be known, must be capable of making a difference to other facts and so, either mediately or immediately, to our powers of knowing, it does not follow that we must assume that facts, in advance of being known must be strung on the unity of thought. Facts in order to become *known* must be strung upon our hypotheses, become a part of our purposes, but that does not prove that they can only *exist* as thus strung. It is through such stringing that facts come to have their *significance* for our human experience, but that does not prove that they then begin to *exist* or that thus they must exist in a larger mind. Facts satisfy the law of totality when they are capable of making some difference to our purposes under definable conditions. This is quite different from holding that, because we can string things on our unity of apperception, therefore they must already be part of a transcendental unity of thought.

III. THE LAW THAT TRUTH MUST BE REPRESENTATIVE, OR THAT IT PRESUPPOSES THE SUBJECT-OBJECT RELATION.

This is involved in all thinking; and the attempt to state the subject as object or vice versa, for thought purposes, gives rise to a paradoxical infinite which is not a progress toward a limit, but which simply means that you cannot transcend the subject-object relation while you remain within the concept of thought. This paradoxical answer resembles the one you get in number when you ask what number is less than the least conceivable fraction. To which the answer is: Zero, which is not a number at all, and so beyond the series of fractions. The difference is that the conception of an infinite series in the case of number has a warrant in the progress toward a limit, which is not the case in the subject-object relation. Here nothing is gained by the repetition, once you have grasped the law that in every judgment, including the reflection upon itself, the subject-object relation is involved. You do not get a thought at infinity which is neither subject nor object.

A good deal has been said about the self-representative character of thought and its supposedly implied infinite. Now, it is quite true that the proposition, no subject without an object, as a law of thought, must be self-applicable, *i. e.*, the judgment, as regards the subject-object relation of thought, itself involves the subject-object relation. Like all true presuppositions of thought, the subject-object presupposition is circular. Thought activity always means the discovery of the relation of a selected content to a system; and to this the reflection upon the subject-object character is no exception. We simply become conscious of the fact that the self-representative judgment is an instance of the universally representative character of thought and differs in no wise, so far as the application of this law is concerned, from any other judgment.

Now, thanks to language, this representative statement, whether self-representative or other-representative, can be repeated upon itself to infinity. And this, no doubt, has its own value as a logical sport, whether in the philosophy of number or in other speculations; but it does not in any wise clarify the nature of thought. For purposes of epistemology, the self-representative character of thought simply means that the subject-object relation as a presupposition of thought is self-applicable. It certainly does not prove that truth is an infinite series.

Neither does the universality of the subject-object relation in all our *thinking*, prove that it must hold universally for *existence;* that because we cannot *think* an object without a subject, therefore all thinkable *reality* must be involved in the circle of this subject-object relation; ergo: all reality must be a spiritual or reflective unity. This has been a favorite argument for idealism and is certainly a short cut. But is it valid? We must remember that the subject-object presupposition only holds for our *thinking* of reality. It can only be a presupposition therefore for reality which thinks. Our reflecting upon the stone does not necessarily make the stone reflective, and so does not necessarily sweep the real stone within the subject-object circle of our thought. What parts of reality think and what do not think must be decided upon evidence, and not by any *a priori* epistemological presuppositions. All we can show is that they must hold for *thinking beings*, that they are presupposed in our thinking and that our denial of them affirms them. But we cannot show *a priori* what beings *are* thinking beings or that the universe as a whole is a thinking animal.

IV. THE LAW OF FINITUDE.

So far from thought being infinite in character, I shall try to show that thought or truth must always be finite. We have seen that thought is in nature relational; that it universally means the active selecting and assimilating of a datum by an apperceptive system which does the selecting and relating. Now both the content selected and the system within which it is to be related or defined must be finite in character. I will use geometry, a purely formal science, to make my point clear. I quote from Russell regarding the determination of points and their relations: "Any two points determine a unique figure, called a straight line, and three in general determine a figure, the plane. Any four determine a corresponding figure of three dimensions, and for aught that appears to the contrary the same may be true of any number of points. But this process comes to an end, sooner or later, with some number of points which determine the whole of space. For if this were not the case, no number of relations of a point to a collection of given points could ever determine its relation to fresh points, and geometry would be impossible."[1] And again in speaking of dimensions: "The number of relations required must be finite, since an infinite number of dimensions would be practically impossible to determine."[2]

We always base our concepts or laws upon the examination of finite facts and their finite relations. Plato and Aristotle already recognized that there could be no truth of absolute flux or absolute chance. It is only flux that repeats itself under describable conditions, variety with finite characteristics, that can be reduced to science.

To be sure the law may repeat itself in an endless number of instances, there may be no last term in the series. Such series abound in mathematics. But, in such cases, it is not the potential infinity of the steps which constitutes knowledge. Clearly, a generalization from enumeration would be a contradiction, if we assume infinite instances. The concept of the series is based upon the fact that the steps repeat themselves according to certain finite characteristics or laws. It is this, the identical or universal element, with which truth is concerned, not with the repetition. In fact, once the law of the series has been discovered, the repetition becomes useless. You can then take the series as completed. There would be no virtue in repeating the series, $1 + \frac{1}{2} + \frac{1}{4}$, etc., after discovering its limiting term or its sum, whichever you may be interested in. An infinite number is contradictory, because $n + 1$ is the nature of number. This law is based upon the number process as actually observed. The unpredictable character of number, outside of its general law, is well known, because in each case we must proceed by induction from individual instances and observe their relations.

The infinite, in the case of thought, arises from not recognizing the presuppositions of thought, for example, subject and object.

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[1] *Foundations of Geometry*, p. 132. [2] *Ibid.*, p. 161.

The infinite series does not solve the problem. It can only bring the presupposition involved, to light. The infinite cannot then be regarded as of the nature of thought. It is merely a result of reflecting upon the nature of a reflective system. It is set by thought as its logical sport. It has nothing to do with the laws or validity of thought. It shows that thought is dependent upon the larger will which sets the game. Knowing knowledge does not mean that we must know in advance of knowledge, but that we must analyze the presuppositions of knowledge. It is the circular character of the presuppositions of truth, looked at as abstract truth, that gives rise to the apparent infinity of truth. But the infinity is only apparent. That the law of identity or any other *a priori* postulate is epistemologically circular is as clear at the outset as it would be after endless repetitions. We need only become conscious of its *a priori* character as a presupposition of truth. To be sure, it applies to itself as a proposition and to the reflection upon this application, etc., but nothing is gained by such a repetition. It is a disease of language.

The infinity of Plato's Parmenides and of Bradley is a paradox created by definition—by taking thought as abstractions, mutually exclusive, and then attempting to bring them together. In the infinite of the Parmenides, for example, you have no true limit, though there is no end to the series. If terms are like, they must partake of or belong to the idea of absolute likeness; but in this case the term must be like the idea and the idea like the term; and this likeness must be due to their partaking in an idea of likeness and so on to infinity. Otherness would do as well as likeness. In fact any relation, taken as an abstraction, will illustrate how contradictory it becomes. Thus the one shows itself other than the other, etc. In Bradley, you have a similar infinite as regards qualities and relations. Here, too, there is no limit or progress in the series. If you start with disparate, independent qualities, then any relation which tries to relate them must have something in common with each of the terms; in that case it disrupts and must in turn be related, etc., *ad infinitum*.[1] But the infinite repetition offers no solution. It simply shows that such a definition of qualities makes relations impossible, which ought to be clear at the outset.

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[1] For a recent statement of Mr. Bradley's position, see *Mind*, October, 1909, pp. 494 ff.

In order to apply the conception of the infinite to knowledge in a significant way, it is necessary not only to show that, so far as knowledge is concerned, the dualism of subject and object, of system and datum, is insuperable and, therefore, that no finite steps can solve it, but it is necessary to show that there is progress toward a limit and what this limit is. Now, in knowledge, the datum to be organized may be considered as capable of greater and greater systematization, and thus growing smaller as outstanding raw material. But this does not prove that knowledge is infinite. Further, it is true that the limit of the thought process, its *rationale*, cannot be reached on the level of thought, for though all other data were organized, all other problems solved—set by the nature of the content or by the free play of thought—when the last surd has yielded up its enigma to the progressive system of knowledge, there remains the problem of thought itself. Thought makes itself the pure content of its own reflections. And here it discovers a limit beyond itself. For thought cannot answer the question: 'why thought?' Or why does thought have this constitution and no other? Why this search for wholeness? Or stating it in relational terms: Granting that we may be able to weave our relations into ever larger and more comprehensive relations, the minor classes into still larger classes, how can we define a system of relations which is not in turn relative to a larger system, a class which is not itself a class? Here you come upon a limit of the process, which like the number zero or the zero of quantity lies outside the process itself, viz., in the purposive will which chooses to realize itself in this way, chooses this form of activity—the will to think. But there is nothing to show that this zero lies at infinity. It is rather the purpose within which thought moves, the end for which it exists. Thought has reached the Canaan of its progress. But, like Moses of old, it cannot enter. This is the land of faith.

Two tests have been proposed of the laws of thought: (*a*) Do these laws presuppose themselves? (*b*) Are they presupposed by their own denial? (*a*) Do they presuppose themselves?

Take the law of consistency—could we deal with the *meaning* of consistency unless we could take it as the same? Clearly not, as this is the only way in which we can define it or deal with it logically. If you take again the law of totality, here presupposing itself would mean that as a proposition it coheres with other propositions of experience, thus indicating a systematic whole. And this is certainly assumed. It is also evident that these laws presuppose each other. The law of totality must have a consistent meaning and the law of consistency must cohere with other propositions into a systematic whole. And this holds of the other postulates. So again with the subject-object relation. This is implied in itself. The judgment about the subject-object relation itself presupposes the subject-object relation. So do the propositions concerning consistency and totality. Likewise must the proposition of finitude be self-applicable and applicable to the other postulates, including the propositions regarding identity, totality, and the subject-object form.

If you take again the second test, viz., that they must be presupposed by their own denial, this too is met by these laws. You cannot deny the law of consistency, and still have the proposition of consistency. You must define what you mean and stick to it for the purpose of the argument. Again, you cannot deny the wholeness of human experience, the unity of our world of thought, because in that case you would make social understanding impossible; and presumably you argue to be understood. It is not necessary to stop to show that each presupposition holds for the other—that the denial of consistency, in regard to the proposition of totality, must imply it, and that the denial of the unity, or social character of our world implies it, when you try to argue consistency. A denial again of the subject-object relation clearly presupposes it. And if you deny the law of finitude, you imply it, for the law of finitude means that you presuppose finite relations, and it can be shown that in denying the law of finitude, your judgment as a matter of fact involves finite relations.

But it seems to me that only the argument, which proves that you cannot think at all without implying these postulates, establishes a universal for their epistemological necessity. This you cannot get by showing that they are actually implied in any given judgments, for these are not exhaustive. The affirmative implication would only give you a particular result, not a universal. To establish a universal you must show, not only that the judgment selected implies the presuppositions in question, but that you cannot think, make any judgment whatsoever, without presupposing these postulates. That you show that they are as a matter of fact implied in their own propositional statement, and that their denial implies them in the case of their own statement, would only prove a particular application. It is no more significant that they imply themselves or that their denial presupposes them in their own statement than to suppose that such is the case in regard to some other proposition. It would not prove that they must hold in the case of all propositions.

To prove them universal, we can do one of two things. We can assume them as conventions or we can show that, in the actual social procedure of thought, there can be no negative instance without making truth impossible, which would show that they must hold for all cases of truth. In the former case we can meet with no negative instance, because we have by definition forestalled any such instance, just as, when we posit a space of zero curvature, we cannot, for the purpose, meet with a case which is not of that character. But as thought is an actual constitution, we are not at liberty to posit at will. Rather, as in the case of number, must we discover what the ideal constitution of thought is. The second method, therefore, is the one we must choose. And here we must show, not only that the law holds in a particular instance, as in the case of its own statement, but that there can be no instance in which it does not hold.

Now suppose any instance, *n*, in which the law in question does not hold. Take the law of consistency. Then in such a case truth is impossible. For in order for truth to be possible, it will be seen that we must be able to take our meaning as the same. Otherwise there can be no definition or argument. So in regard to any of the other laws. And the consciousness that there can be no truth, if the law does not hold, makes explicit the law If it is objected that this is a circular process and not a proof, I would entirely agree. The process, however, brings out the implication, shows us the already implied necessity of the postulates for all our thinking. And this making explicit what is implicit is all the demonstration of which the presuppositions of thought are capable.

But does this mean that these presuppositions are also ontologically necessary? That they require no proof as regards their real validity, in the actual procedure of experience? Our ability to acquire knowledge, to meet our world of facts on such a basis, must here be the guarantee and the only guarantee. And every partial success makes the law in so far valid, though a complete success alone could be a complete vindication. If truth is found to be actually possible, then, in so far, the presuppositions are ontologically valid. The mere assumption of ideality, totality, subject-object or finitude does not make them existentially valid. If we are to know, they must hold for our universe as experienced. While they are *a priori* and necessary postulates from the point of view of knowledge, from the point of view of reality they must be treated as hypotheses to be verified in the procedure of experience. It is not inconceivable that a world should exist in which the postulates of consistency, totality, subject-object, and finitude would have no applicability. But it is also true that in such a world truth would be impossible. In this there is no contradiction, since it is from the point of view of a universe where truth is admittedly possible that we make the judgment of the impossibility of truth in a world where its presuppositions do not hold. If you argue truth, you of course presuppose the possibility of truth. The best refutation of the sceptic who denies that there is agreement, etc., is the method of Socrates that we do understand each other. If they are wholly disparate worlds, they at least do not concern us. If the above postulates are true, you can easily conceive a world in which truth is not possible by dropping one or more of the postulates.

But there can be no *a priori* valid metaphysical postulates. The only possible ontological necessities are the necessities of facts—of the conditions which we must meet in realizing our purposes, what reality must be taken as in order to satisfy the demands of the will. Such necessities, it must be admitted, are in large part hypothetical, owing to the fragmentariness of our knowledge.

On the other hand, it is not conceivable that in a universe where truth is admitted as an ontological fact, truth could also be looked upon as an accident—an accidental variation of a biological process or any other accident. A universe in which truth exists must make it reasonable that truth can exist. There can be no evolutionary epistemology in the sense of biological chance. And the question of the validity of the above postulates is quite independent of any theory of biological evolution.

Is there any difference as regards the primacy of these postulates, for example, the law of consistency and the law of totality? Is the former self-evident in a sense the latter is not? Is it possible in each case to conceive the opposite? I believe it is. If it is possible to conceive a universe existing in compartments, disparate systems, which do not touch each other at any point, so it is also possible to conceive a universe of flux in which there is no identity, and in which therefore no predication is possible. One is no more a fortunate circumstance than the other.[1] But while we can conceive such a world, we cannot conceive thought in such a world. It is also conceivable that a world of dreamy absorption or even of no experience might exist. In such a world there would be no subject-object relation, but neither would there be any thought. So a world of infinite dimensions is conceivable, but thought is not conceivable in such a world.

There can be no priority as regards the presuppositions of thought. If there were, they would not be universal presuppositions. Each must hold for all thought, including itself as well as the other presuppositions. Each is circular in character or incapable of proof so far as epistemology is concerned. It is this circular character of the form of truth which gives rise to the paradox which was already noted by Plato in the Theætetus, viz., that a logical definition of knowledge is impossible, because in defining knowledge we cannot avoid using knowledge in the predicate, as when we use the definition suggested by "some one" that "knowledge is right opinion with rational definition or explanation." To have a right opinion and be able to give the reason for it, which is the very essence of the syllogism, certainly seems a satisfactory definition of knowledge. And it took the genius of Plato to discover that this definition was really circular, for right opinion with explanation means "right opinion with knowledge of difference"; and so we have presupposed the very thing we were to define—the form of knowledge. This circular or self-applicable character of the definition of knowledge, we have now come to accept. But we must also come to realize that this circular character is in no way remedied by an infinite series of hypothetical reflective acts, to the effect that we know that we know, and again, that we know that we know that we know, etc. Such a series solves nothing. It merely emphasizes the circular character of the form of thought. The truth of truth cannot be proved *a priori.* It can only be proved by its convenience in ministering to the will, which sets the game of thought.

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[1] Contrast Lotze's treatment, *Logic* (English trans.), Vol. I, 94–96.

And here I want to offer a caution or two: First, it is well to remember, in spite of the mystical tendencies of to-day, that truth is an adjective of *thinking* and has no meaning outside of systematic judgment. We cannot speak of mystical appreciation, any more than of perceptual immediacy, as truth. Truth is always an active sorting of reality as experienced. This need not mean, however, a transmuting of reality as first experienced. The sorting does not necessarily alter the qualities it sorts. If so there is no way, mediate or immediate, to truth.

In the second place, it is not fair to charge the thought process with the contradictions arising from our conceptual assumptions. Rather overhaul the assumptions. Men like Spencer and Bradley have charged thought with inconsistency and bankruptcy because of the ready-made assumptions with which they have started. It may be there are ways of conceiving space, time, etc., which are not contradictory.

And, thirdly, the way of thought is not the whole of life. There are other ways—immediate perception, esthetic appreciation, the consciousness of duty, etc. But while thought is not all of life, and must be understood in relation to life as a whole, it is the only way in which we can, in the last analysis, realize the truth of life, its scales of values. And we must be awake part of the time to estimate the significance of perception or of mystical appreciation. Whether we regard it more important to be awake in order that we may sleep or to sleep in order that we may be awake, is likely to be decided on the basis of temperament. Both sleeping and waking, appreciation and thought, in the end, must be estimated from their rhythmic place in life as a whole. Certainly the sleeping states, however blissful, have no truth except as taken up into the woof of the waking states.

THE PLACE OF THOUGHT.

We may sum up the place of thought in the economy of life by saying that thought is an activity of the will, predetermined as regards its form by certain presuppositions which are posited by the will to think. It is not the only activity of the will. The will may be instinctive in its activity, it may be perceptual, it may be guided by concrete images, it may dream. But when the will sets itself the task of thinking, whether for purposes of practical necessity or for the enjoyment afforded by the game of thinking itself, the will accepts or postulates certain norms, a constitution of thought. These it postulates in a very different sense from *n* dimensional or negative curvature space, which it postulates simply from choice for the sake of a particular thought activity. The laws of thought the will must postulate in order to think at all. The only way the will can choose not to be bound by the necessities of thought is not to think. The will sets itself the task of the conscious definition of its own purpose by means of concepts, and it wills to pursue this process in accordance with certain formal conditions, which it acknowledges as binding for the purpose, viz., the laws of thought. Plato's view in the Parmenides that we cannot know the absolute norms is mistaken. Such norms are for thought ideals, limits, faiths in the attainability of truth, but as such they provide a goal for our striving, and in a formal way at least, they must be the warp of our thinking. They are not generalizations, but presupposed as conditions by all generalizations.

Does thought, then, transcend itself? No, I should rather say thought is transcended by life, the will or faith which sets it. Faith sets the problem of truth—the search for unity. Faith too promises the solution, sets the limit of the process, demands that there shall be form or unity. Otherwise thought would be an aimless play with contradictions. Thought, thus inspired, succeeds in approximations, pragmatic formulas, which are as good as true, even if approximations. But thought itself—*i. e.*, the process of judgment, conception, and inference—is machinery in the service of faith. Thought is relative—relative to the realization of the will, its work and play—relative, as every function must be, to life as a whole. This relativity of thought is shown whether we examine its subject-object form or its relational content. We cannot deal with thought as an abstraction without thought becoming paradoxical or circular.

This impulse to think, however, must not be looked upon as an artificial appendage, tacked on to life without any relation to its fitness or needs. Rather it is a normal expression of life as it unfolds its growth series, as the sex instinct is a normal expression of life and its necessities, however early or late it may awaken. The universe is so constituted as to make such demands upon itself for the largest life. And that is all we know. That truth is possible and that truth is worth while is a faith prior to truth and justified by its consequences to the life process of which it is a part. The ego wills to think—both because it is practically useful and because it provides ideal sport—but in willing to think it also wills to accept the formal conditions without which thinking would become impossible. The will can refuse to think. In that case it can run riot as it pleases, determined by no law except the determinations of pleasure and pain. But if the will chooses to think, then it also chooses certain laws of procedure. Thought itself must accept its own existence and nature as a fact. It cannot transcend its own constitution *a priori* or as thought.

JOHN E. BOODIN.

UNIVERSITY OF KANSAS.